

We claim:

*SJH A1*

1. A method for indexing voice mail messages, comprising:  
2. receiving one or more voice mail messages from one or more callers;  
3. processing speech signals from each of the voice mail messages with one or more caller  
4. speaker models;  
5. determining the identity of each of the one or more callers in each of the one or more  
6. voice mail messages; and  
7. tagging each of the voice mail messages with the respective identity of the caller for each  
8. respective voice mail message.

1. 2. The method of claim 1, further comprising the step of:  
2. receiving a speaker label from a user for a voice mail message tagged as unknown,  
3. wherein the speaker label is the identity of the speaker of the voice mail message.

1. 3. The method of claim 1, wherein the speaker label provided by the user is used to create a  
2. storage folder for that specific speaker of the voice mail message. .

1. 4. The method of claim 1, wherein the speaker models are created from one or more voice  
2. mail messages left by the same caller.

1. 5. The method of claim 1, wherein speaker models are created using acoustic features  
2. extracted from the voice mail message, the acoustic features extracted using speaker recognition  
3. techniques.

1. 6. The method of claim 1, further comprising:  
2. tagging the voice mail message as unknown if no existing speaker model is found to  
3. match the voice mail message.

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The method of claim 6, further comprising:  
receiving a speaker label from a user for the voice mail message tagged as unknown.

1 8. The method of claim 6, wherein the voice mail message tagged as unknown is used to  
2 adapt a previously created speaker model.

1 9. The method of claim 1, wherein the step of determining the identity of the caller in each  
2 of the one or more voice mail messages includes the substep of:  
3 using automatic number identification to assist in determining the caller's identity.

1 10. The method of claim 1, wherein the step of determining the identity of each of the one or  
2 more callers includes the substep of:  
3 using speech recognition techniques to extract caller identity information from the voice  
4 mail message.

1 11. A method for organizing a plurality of voice mail messages for one or more voice mail  
2 subscribers, comprising:  
3 processing speech signals from each of the plurality of voice mail messages with one or  
4 more speaker models;  
5 determining the identity of each of the voice mail message speakers based on the  
6 comparison with the one or more speaker models; and  
7 organizing the plurality of voice mail messages by speaker.

1 12. The method of claim 11, further comprising the step of:  
2 tagging a voice mail message as unknown if the comparison of processed speech signals  
3 with the speaker models does not pass a matching threshold.

1 13. The method of claim 11, wherein each of the one or more speaker models is created from  
2 speech signals extracted from previous voice mail messages left by the same caller as identified  
3 by the voice mail subscriber.

14. The method of claim 11, wherein the step of determining the identity of each of the voice  
mail message speakers based on the comparison with the one or more speaker models further  
includes the step of:

4       determining, using automatic number identification, the telephone number of each  
5       speaker leaving a voice mail message.

1       15. The method of claim 11, further comprising:

2       tagging a particular voice mail message as unknown if no existing speaker model is found  
3       to match the voice mail message.

1       16. The method of claim 15, further comprising:

2       receiving a speaker label from the subscriber for a voice mail message where no match is  
3       found from the one or more speaker models.

17. A system for organizing one or more user's voice mail messages by speaker, comprising:  
1       a voice mail server for determining the identity of a plurality of voice mail messages by  
2       processing each of the plurality of voice mail messages with one or more speaker models, each  
3       of the speaker models identifying a specific caller; and  
4       a storage medium for storing the plurality of voice mail messages, the plurality of voice  
5       mail messages organized by caller on the storage medium.

1       18. The system of claim 17, wherein the voice mail server tags a voice mail message as  
2       unknown if the voice mail message does not match any of the existing speaker models.

1       19. The system of claim 17, wherein the voice mail server also uses automatic number  
2       identification to assist in determining the identity of a specific caller.

1       20. The system of claim 17, wherein the voice mail server uses speaker identification and  
2       verification techniques to create speaker models.